

Status of work on questions from 2002 Monitoring Strategy

Table A1. Specific monitoring questions and priority rating. Note: the first 3 columns of these tables are verbatim from the 2002 strategy; the fourth column summarizes the status of work completed in relation to each question.

Number	Riparian Structure and Function Questions	Priority	Status
1.	What levels of large wood recruitment are retained in riparian areas of small, medium, and large streams when measured under the current rules? Are the retained levels desirable? (effectiveness)	Top	Data collected for small and medium streams, analysis not begun
2.	Do the riparian rules promote streamside forest stand structure and large wood recruitment levels that mimic mature riparian stand conditions? (trend, effectiveness, validation)	Top	Ongoing RipStream analysis
3.	Are forest practice rules effectively protecting headwater (small Type N) streams such that local and downstream beneficial uses are protected? Key issues include effects on stream temperature, large wood recruitment, stream flow, sediment delivery, debris torrent processes, macroinvertebrates, and how those effects are translated downstream. (effectiveness, trend, research)	Top	Ongoing Trask analysis
4.	Is there a threshold streamflow at which small Type N streams affect the temperature regime of downstream Type F streams (e.g. when they contribute 10% or more of the streamflow)? (validation)	Top	Not started
5.	What are the effects (on temperature, flow, and sediment, and large wood regimes) on Type F streams of harvesting multiple contributing small Type N streams? (effectiveness, research)	High	Not started
6.	What is the effect of slash loading in headwater streams on water quality, fish habitat of downstream Type F streams, and debris torrents? (effectiveness, research)	High	Not started
7.	What percent of landowners and riparian prescriptions implement no-harvest riparian areas in support of the salmon plan? (implementation, OWEB database, OPSW activity 3.8)	High	Robben & Dent (2002) addressed first part of question; as of March 2015: project design phase to revisit it.
8.	What is the implementation rate of active placement of large wood during forest operations? (implementation, OWEB database, OPSW activity 3.5)	Moderate	Not started
9.	Are large wood recruitment incentives (OPSW activity 4.5) providing desired results?	Moderate	Not started
10.	Are landowners leaving 25% of in-unit leave tree and additional voluntary retention along Type F streams and is this effectively meeting resource protection goals? (OPSW activity 3.6)	Moderate	Not started

Number	Riparian Structure and Function Questions	Priority	Status
11.	Are efforts to place large wood in streams improving fish habitat? (effectiveness)	Low	Not started
12.	Are the rules and guidance for the placement of large wood in streams implemented correctly? (implementation)	Low	Not started
13.	What are the compliance rates with the water protection rules? (compliance)	Low	Complete: Clements et al., 2014 plus ongoing monitoring 2013; Robben & Dent, 2002
14.	What are the compliance rates with felling conifers away from small Type N streams? (compliance)	Moderate	Not started
15.	Do the stream improvement activities encouraged under the new water protection rules and the OPSW contribute to salmon recovery? (research)	Top	Not started
16.	What are the implementation rates and effectiveness (maintaining stream temperature, hydrologic, sediment, and wood routing regimes) of limited RMAs on small Type N streams? (implementation, effectiveness, OPSW activity 3.4)	Top	Implementation – Robben & Dent, 2002 Effectiveness – ongoing Trask analysis
17.	What is the distribution of fish presence throughout the state? (trend, fish presence surveys, OPSW activity 4.7)	High	Ongoing analysis by ODFW
18.	How many miles of stream receive increased protection measures as a result of changing the stream classification from N to F or from N to NT? (trend, OPSW activity 4.8)	High	Not started
19.	Develop methods for predicting fish presence. (research)	Top	GIS (DEM-based) model developed
20.	What are the ranges in large wood recruitment, instream large wood, shade and riparian characteristics that occur under “natural” disturbance regimes, under current conditions, and under current forest practice rules? (research, trend)	Top	Complete: Dent, 2001; Allen and Dent, 2001 Ongoing RipStream analysis
21.	How do riparian stand, channel and upland characteristics on non-federal forestlands vary by georegion, stream size, forest practice “era”? (trend)	Moderate	Allen & Dent (2001) addresses some of this question
22.	What are the relationships between trends in riparian condition, instream condition, and salmon populations over time?	Low	Not started
23.	In hardwood-dominated riparian stands, are silvicultural approaches resulting in increased conifer establishment? (effectiveness)	High	Not started

Number	Riparian Structure and Function Questions	Priority	Status
24.	What are the regeneration characteristics (species composition, density, relationships to understory and overstory characteristics) within riparian areas? (effectiveness, trend)	High	Complete: Dent, 2001 RipStream (data collected and not analyzed)
25.	How are the microclimates of riparian areas affected by harvesting under current rules? (research)	Moderate	Not started

Number	Wetlands Questions	Priority	Status
26.	Do the vegetation retention standards for significant and other wetlands protect wildlife habitat and hydrologic functions? (OPSW activity 4.3, effectiveness)	High	Not started
27.	What are the compliance rates for rules designed to protect significant and other wetlands? (implementation)	High	Complete: Robben & Dent, 2002 Clements et al., 2014 addressed some rules

Number	Wildlife Habitat/Sensitive Resource Sites Questions	Priority	Status
28.	What are the potential effects of forest practices on bald eagles nesting in Oregon? (effectiveness)	Top	Complete: Isaacs et. al, 2005
29.	What are the compliance rates for rules designed to protect threatened and endangered fish and wildlife species that use resource site on forestlands (i.e., northern spotted owl nesting sites, bald eagle nesting sites, bald eagle roosting sites, and bald eagle foraging perches)? (compliance)	Top	Complete: Isaacs et. al, 2005
30.	What are the compliance rates for rules designed to protect significant wetlands and other wetlands? (compliance)	Top	Complete: Robben & Dent, 2002; Clements et al., 2014 plus ongoing monitoring
31.	What are the compliance rates for rules designed to protect sensitive bird nesting, roosting, and watering sites (i.e., osprey nesting sites, great blue heron nesting sites)? (compliance)	Top	Not started
32.	What are the compliance rates with retention of wildlife trees and downed wood? (compliance)	Top	Complete: Weikel et al., 2014
33.	Do the protection measures for northern spotted owl nesting sites ensure that forest practices do not lead to resource site destruction, abandonment, or reduced productivity? (effectiveness)	High	Not started
34.	Do the protection measures for significant wetlands ensure that forest practices do not lead to resource site destruction or reduced productivity? (effectiveness)	High	Not started.

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35.	Do the protection measures for osprey ensure that forest practices do not lead to resource site destruction, abandonment, or reduced productivity? (effectiveness)	High	Not started.
36.	Do the protection measures for great blue heron nesting sites ensure that forest practices do not lead to resource site destruction, abandonment, or reduced productivity? (effectiveness)	High	Not started.
37.	Describe the species composition and abundance levels of wildlife and plant communities occurring in forest stands of varying seral stages, size classes, and landscape configurations in watersheds managed primarily for timber production. (research)	High	Trask Watershed study will address some wildlife aspects
38.	Develop methods for analyzing wildlife responses to stand- and landscape-level habitat conditions in managed watersheds. (effectiveness, research)	High	Not started
39.	Do the wildlife leave tree and downed wood requirements provide for wildlife habitat as intended?	High	Complete: Weikel et al., 2014
40.	What are the implications of preferentially retaining wildlife leave trees along streams in support of the Oregon Salmon Plan?	High	Not started
41.	Do current forest practices protection measures adequately protect headwater amphibian species?	High	Trask Watershed study assessing this
42.	Will current and projected future forest habitat conditions be sufficient to maintain viable populations of forest-dwelling wildlife species in Oregon?	High	Not started
43.	Develop methods to assess and monitor elements of sustainable forestry and biodiversity conservation. (research)	High	Not started
44.	What are the compliance rates for the water protection rules for lakes? (compliance)	Moderate	Complete: Robben and Dent, 2002; Clements et al., 2014 plus ongoing monitoring
45.	Do the riparian management area and protection measures for lakes maintain the functions and values of lakes, including those related to water quality, hydrologic functions, aquatic organisms, fish and wildlife? (effectiveness)	Moderate	Not started
46.	Do the protection measures for “other” wetlands, seeps, and springs prevent soil and vegetation disturbances which would cause adverse effects on water quality, hydrologic function, and wildlife and aquatic habitat? (effectiveness)	Low	Complete: Robben and Dent, 2002

Number	Stream Temperature Questions	Priority	Status
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47.	What are the basin-level trends in stream temperature on a variety of basins? How does harvesting affect basin-level trends in stream temperature? (trend, effectiveness)	High	Ongoing Hinkel, Trask, and Alsea analyses
48.	How do stream temperatures on forested streams vary over time and space? (trend)	High	Ongoing Hinkel, Trask, RipStream, and Alsea analyses Complete: Dent et al., 2008
49.	Are best management practices resulting in temperature increases at the site or watershed levels? (effectiveness)	Top	Ongoing Hinkel, Trask, RipStream, and Alsea analyses Complete: Groom et al., 2011a,b; Czarnomski et al., 2013; Dent and Walsh, 1997
50.	What are the effects of hardwood conversions on stream temperature? (effectiveness)	Top	Dent and Walsh, 1997
51.	How do localized increases in stream temperature affect aquatic biota? (research)	Top	Ongoing Hinkel, Trask, and Alsea analyses
52.	Develop effective methods for scaling site-specific temperature impacts from multiple harvest operations to an evaluation of effects at the basin-scale. (research).	Moderate	Ongoing Hinkel, Trask analyses
53.	What levels of shade are retained under the current vegetation retention rules as compared with pre-harvest levels? (effectiveness)	High	Ongoing Hinkel, Trask, RipStream, and Alsea analyses Complete: Allen and Dent, 2001; Dent, 2001; Dent and Walsh, 1997; Groom et al., 2011b
54.	How do shade levels vary with stand, channel, valley type, and georegion? (trend)	Moderate	Complete: Allen and Dent, 2001
55.	What are the ranges in stream temperature and shade provided under "historic" disturbance regimes and under current conditions? (trend)	Low	Complete: Allen and Dent, 2001; Dent, 2001; Dent and Walsh, 1997; Groom et al., 2011b; Dent, 2008
56.	What is the role of groundwater input and hypereic flow in cooling stream reaches? What are the geomorphic characteristics of stream reaches in which subsurface flow contributes to cooling? (research)	High	Trask and Hinkle Watershed

Number	Roads and Slope Stability Questions	Priority	Status
57.	Do crossings installed under current guidance provide juvenile and adult fish passage over time? (effectiveness, research)	Top	Not started
58.	Do crossings installed under current juvenile fish passage guidance have unique maintenance issues? (effectiveness)	High	Not started

Number	Roads and Slope Stability Questions	Priority	Status
59.	What are the compliance rates with juvenile fish passage requirements and guidelines? (compliance)	Moderate	Complete: Paul et al., 2002
60.	How do different surfacing and road use practices affect turbidity in streams? (effectiveness, research)	Top	Ongoing Trask analysis
61.	Are best management practices minimizing unacceptable increases in turbidity levels for domestic water systems? (effectiveness)	Moderate	Not started
62.	Are forest practice erosion-related rules, dealing with road construction, maintenance, and harvest activities, preventing and limiting surface erosion and landslides and sediment delivery to waters of the state? (effectiveness)	High	Ongoing Trask analysis
63.	What are the ranges in sediment delivery and routing in stream systems that occur under “historic” disturbance regimes and under current conditions? (trend, research)	Low	Not started
64.	What are the frequency distributions of landslides, debris flows and channel impacts from forested land of various stand ages and management histories? (trend, research, effectiveness)	Low	No additional work since Robison et. al, 1999
65.	Are high-risk sites consistently identified during the forest practices notification process? (effectiveness)	Moderate	Not started
66.	What are the compliance rates with BMPs for roads, skid trails, and high risk sites? (compliance)	Moderate	Complete: Paul et al., 2002, Clements et al., 2014 plus ongoing monitoring
67.	What are the relative contributions of inherent and management-related sediment sources to the sediment budget of a variety of watersheds? (research, effectiveness)	Low	Ongoing Trask analysis
68.	Is the road hazard and risk reduction project being implemented and resulting in improved road conditions? (implementation, OPSW measure #1, OWEB Database)	High	Ongoing Trask analysis
69.	Develop information and analytic tools for evaluating the cumulative effects of forest harvests on stream sedimentation and turbidity. (research)	Low	Complete: Mills et al., 2003
70.	What factors affect debris-flow travel potential impacts to homes, roads, and streams? (research)	High (post)	No additional work since Robison et. al, 1999
71.	What is the role of root strength versus canopy alteration of water delivery in slope stability? (research)	Moderate	Not started
72.	Are culverts being designed to pass a 50-year peak flow? (OPSW activity 4.10)	Low	Complete: Paul et al., 2002, Clements et al., 2014 plus ongoing monitoring

Number	Roads and Slope Stability Questions	Priority	Status
73.	Are road crossings being installed with no greater than 15-foot fills (OPSW activity 4.11) unless there is prior approval?	High	Clements et al., 2014 plus ongoing monitoring
74.	Are the upgraded stream crossing construction and fill requirements being implemented? (OPSW activity 4.12 OWEB)	High	Complete: Paul et. al, 2002

Number	Pesticides Questions	Priority	Status
75.	What level of contamination is injurious (including acute toxicity, chronic toxicity, and sub-lethal behavioral effects) to aquatic biota? (research)	Top	Not started
76.	Is water quality, including the integrity of aquatic communities and public health, being effectively protected when herbicides or insecticides are applied near streams? (effectiveness, research, OPSW activity)	Low	Alsea Watershed study assessing this
77.	Is water quality, including the integrity of aquatic communities and public health, being effectively protected when forest management chemicals are applied near small Type N streams? What are the downstream effects on water quality, aquatic biota, and human health if contamination does occur on small Type N streams?	Moderate	Not started
78.	What concentrations of chemicals are found in streams when runoff events occur after the initial forest application near streams? Do these concentrations threaten water quality, aquatic biota, or public health, either locally or downstream? (effectiveness, research)	Moderate	Alsea Watershed study assessing this
79.	Is water quality protected from surfactants, carriers, and “inert” ingredients when chemical applications take place near streams? (research)	Moderate	Not started

Number	Air Quality Questions	Priority	Status
80.	Has smoke from prescribed burning in regulated forest operations met the requirements of the clean air standards? (compliance)	High	Not started

Number	Productivity and Reforestation Questions	Priority	
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81.	What is the level of compliance with reforestation rules? (compliance)	High	Complete: Robben and Dent, 2002
82.	Are the reforestation rules resulting in productive forests with characteristic growth and stocking potentials for the site and species? (effectiveness)	Low	Complete: Dent, 2001
83.	Are BMPs minimizing soil disturbance and compaction and maintaining long-term forest site productivity? (validation, effectiveness)	Moderate	Not started
84.	What are the compliance rates with rules that are designed to maintain soil productivity? (compliance)	Moderate	Not started

Number	Oregon Plan Questions	Priority	Status
85.	Are volunteer OPSW activities being implemented and are they effective at achieving the salmon protection and restoration goals? The multiple resources imbedded in this question are addressed through specific questions above. (OPSW activity 1.1)	Top	Study slated to start in 2015

Number	Additional FPAC Recommendations Questions	Priority	Status
86.	What is the extent of environmental protection, economic, landscape impacts of the proposed NT designation that came out of FPAC?	Top	Not started
87.	What are the predictors of perenniality and fish presence and how does that affect the NT designation?	High	Not started
88.	Are Stewardship Plans effective and being implemented in accordance with the agreements?	Moderate	Not started
89.	Can the FPMP aid in monitoring associated with certification programs?	Moderate	Not started

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